

From the INTERNATIONAL BUREAU

**PCT**

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis.3(c) and 72.2)

To:

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22. Jan. 2007

PATENTANWÄLTE

Date of mailing ( <i>day/month/year</i> ) 11 January 2007 (11.01.2007)
Applicant's or agent's file reference 772-1067 jä
International application No. PCT/EP2005/006447
Applicant KUKA SCHWEISSANLAGEN GMBH et al

International filing date (*day/month/year*)  
16 June 2005 (16.06.2005)

**IMPORTANT NOTIFICATION****1. Transmittal of the translation to the applicant.**

The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

**2. Transmittal of the copy of the translation to the designated or elected Offices.**

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

**3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).**

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

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# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 772-1067 jä	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/EP2005/006447	International filing date ( <i>day/month/year</i> ) 16 June 2005 (16.06.2005)	Priority date ( <i>day/month/year</i> ) 23 June 2004 (23.06.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant KUKA SCHWEISSANLAGEN GMBH			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

Date of issuance of this report  
28 December 2006 (28.12.2006)

Authorized officer

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# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year) **See form PCT/ISA/210**

Applicant's or agent's file reference  
**772-1067 jä**

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No. <b>PCT/EP2005/006447</b>	International filing date (day/month/year) <b>16.06.2005</b>	Priority date (day/month/year) <b>23.06.2004</b>
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International Patent Classification (IPC) or both national classification and IPC  
**B23K20/12**

Applicant  
**KUKA SCHWEISSANLAGEN GMBH**

1. This opinion contains indications relating to the following items:

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application   |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application  |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP	Authorized officer
Facsimile No.	Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2005/006447

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

International application No.

PCT/EP2005/006447

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	8, 9, 11-13, 17, 18, 20	YES
	Claims	1-7, 10, 14-16, 19	NO
Inventive step (IS)	Claims	9, 20	YES
	Claims	1-8, 10-19	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO
2. Citations and explanations:			
1	<p>Reference is made to the following documents:</p> <p>D1: US 3 954 215 A (TAKAGI ET AL) 4 May 1976 (1976-05-04)</p> <p>D2: US 3 377 009 A (LIPP CHARLES E ET AL) 9 April 1968 (1968-04-09)</p> <p>D3: US-A-3 439 853 (GERALD W. DEEMIE ET AL) 22 April 1969 (1969-04-22)</p> <p>D4: US-A-4 030 658 (PARRISH ET AL) 21 June 1977 (1977-06-21)</p>		
2	INDEPENDENT CLAIM 1		
2.1	<p>The present application does not meet the requirements of PCT Article 33(1), because the subject matter of claim 1 is not novel within the meaning of PCT Article 33(2). Document D1 discloses a</p> <p>friction welding machine with a frame (2) with a spindle head (3), which has a spindle (9) with a workpiece holder (12) and a spindle drive (1), and with a feed drive (14) with a second workpiece holder (28), the friction welding machine having a second spindle head (15) with a spindle (24), a spindle drive (19) and the second workpiece holder (28),</p> <p>the second spindle head (15) being mounted on the</p>		

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

frame (2, 16) so as to be axially movable and being connected to the feed drive (17).

Since D1 discloses all the features of claim 1, the latter is not novel.

3 INDEPENDENT CLAIM 19

3.1 The present application does not meet the requirements of PCT Article 33(1), because the subject matter of claim 19 is not novel within the meaning of PCT Article 33(2). Document D1 discloses a method of operating a friction welding machine with a number of spindle heads (3, 15) with spindles (6 and 9, 24 and 21), spindle drives (1, 19) and workpiece holders (12, 28) and also a feed drive (17) for a movably mounted spindle head (15), a spindle (6) with a bridging (clutch means 13) being relieved of the axial forging and welding forces F and the torque M during welding operation.

Since D1 discloses all the features of claim 19, the latter is not novel.

4 DEPENDENT CLAIMS 2-8, 10-18

Claims 2-8, 10-12, 14, 15, 17, 18 do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT requirements for novelty and inventive step.

4.1 Novelty:

Claims 2-5, 12, 15, 16: D1 discloses a fixed spindle head, different spindle drives, a movable slide (18), a feed drive with a cylinder and electrical spindle drives.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2005/006447

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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Claims 6, 7: since the term bridging is not defined any further, it is possible for example for the outer circumference of the workpiece holder to be interpreted as a bridging.

Claim 10: these features are implicitly disclosed in D1, since workpiece holders are normally releasably connected to the spindle.

4.2 Inventive step:

Claims 8, 11: D2 (see figure 3, spindle head 3, bearing 44) discloses a positive support of the workpiece holder on the spindle head. The inclusion of this feature in D1 is to be regarded as a routine measure.

Claims 12, 13: supporting the feed drive on the frame and tie rods are state of the art (see D3).

Claims 17, 18: variable flywheel masses are state of the art in friction welding (see D4).

5 DEPENDENT CLAIMS 9, 20

The combination of features contained in the dependent claim is neither known from the available prior art nor suggested by it. The reasons are as follows:

the features of the claims are not known in combination with one another from the prior art and are therefore novel (PCT Article 33(2)).

The problem addressed by the present invention can be considered that of also being able to use the same device for methods in which relatively high forging forces occur.

The solution to this problem that is proposed in claims 9 and 20 of the present application, that of

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

supporting the high compressive forces that occur  
in certain processes directly on the spindle head,  
is not suggested by the prior art and is therefore  
to be regarded as inventive (PCT Article 33(3)).